

Serial No. 09/725,309

PATENT APPLICATION
Navy Case No.: 79,212

REMARKS

Claims 3, 4, 7-15, 21, and 23-29 are pending in the application. Claims 27-29 have been added by this amendment. Claims 3, 4, 7, 8, 15, 24, and 25 are presently allowed.

Claim 9 has been amended to recite the additional step of contacting the attached thioesterase with a sample suspected of containing a contaminant. The preamble is also amended to reflect the purpose of decontamination, rather than immobilization. The claim is also amended to recite that the thioesterase is capable of reacting with the contaminant. Support for this amendment is found at page 1, lines 8-9, page 9, line 22-page 10, line 1, and page 12, lines 7-11

New claim 27, dependent on claim 3, recites the step newly recited in claim 9.

New claims 28 and 29 are similar in scope to claims 27 and 9, respectively, except that they recite "enzyme" instead of "thioesterase." Support for this amendment is found at page 5, lines 19-21.

Claim Rejections – 35 U.S.C. § 102

Claims 9-12, 14, 21, 23, and 26 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Xiao et al., US 6,593,099.

Claim 9 is to a method of reducing the presence of a contaminant comprising genetically engineering a thioesterase capable of reacting with the contaminant to include one or more terminal histidine residues; attaching the genetically engineered thioesterase to salt groups selected from the group consisting of metal salts of iminodiacetic acid (IDA), metal salts of nitrilotriacetic acid (NTA), and mixtures thereof on the surface of a particulate inorganic carrier; and contacting the attached thioesterase with a sample suspected of containing the contaminant.

Xiao is directed to recombinant human S-acyl fatty acid synthase thioester-like polypeptides having a His6 reporter tag. Xiao discloses, but does not claim, that the polypeptide can be isolated by affinity chromatography with NiNTA resin (col. 34, lines 46-56). As the reference is a US Patent purported to disclose the claimed invention without claiming the invention, the reference can be disqualified as prior art by a declaration under 37 C.F.R. § 1.131. The 102(e) date of Xiao is 06/26/2000, the filing date of the earliest provisional application of which the benefit was claimed. The attached Declaration Under 37 C.F.R. 1.131 and evidence

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establish that the present invention was conceived and actually reduced to practice before 06/26/2000.

The declaration establishes that the addition of histidine sites to thioesterase and immobilizing the enzyme on a substrate other than polymerized vesicles was conceived by 06/02/1997. The declaration also establishes that silica was modified with IDA by 03/16/1998, and that the binding of accessible histidine groups copper-IDA salts on silica particles was conceived by 03/10/1998. The incorporated invention disclosure establishes that the method had been actually reduced to practice by 04/21/1998.

As the conception and reduction to practice of the invention of claim 9 occurred before the 102(e) date of the reference, the reference cannot be used as the basis for a rejection of claim 9, or of claims 10-12, 14, 21, 23, and 26 dependent thereon.

These facts were submitted in applicants' response of 03/11/2004, however, the declarations were not signed by all the inventors and did not recite that the acts relied on were carried out in this country or a NAFTA or WTO member country. The Examiner stated in the office action of 05/24/2004 that correction of these matters would result in withdrawal of the rejection.

Claims 9-12, 14, 21, 23, and 26 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Lee et al., *J. Amer. Oil Chem. Soc.*, 76, 10, 1113-1118 (1999).

Lee discloses adding a His6 tag to E. coli thioesterase I, and purifying the enzyme in an immobilized Ni-resin column.

Claim 9 has been amended to recite an additional step that the attached thioesterase is contacted with a sample suspected of containing a contaminant. This step is not disclosed in Lee. In Lee, the enzyme is attached only for purposes of purification. The enzyme is then eluted from the column before any catalytic activity is determined (page 1114, col. 1, lines 29-30).

New claim 29 has a broader scope than claim 9 in that it recites "enzyme" instead of "thioesterase." However, the reference still does not disclose the step of contacting any attached enzyme with a sample.

Claim Rejections – 35 U.S.C. § 103

Claim 13 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Xiao and Lu et

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al., *J. Bio. Chem.*, **271**, 9, 5059-5065 (1996). As explained above, the attached declaration antedates Xiao.

Claim 13 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Lee and Lu.

Claim 13 is to the process of claim 9, using metal salts of iminodiacetic acid. Lu discloses purification of histidine mutants of *E. coli* thioredoxin using copper and nickel iminodiacetic salts.

As in Lee, Lu is directed to purification and not decontamination. Lu does not disclose the limitation from claim 9 that the attached thioesterase is contacted with a sample suspected of containing a contaminant. As the limitation is not disclosed in either reference, a *prima facie* case of obviousness has not been made with respect the amended claim.

In view of the foregoing, it is submitted that the application is now in condition for allowance.

In the event that a fee is required, please charge the fee to Deposit Account No. 50-0281, and in the event that there is a credit due, please credit Deposit Account No. 50-0281.

Respectfully submitted,



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